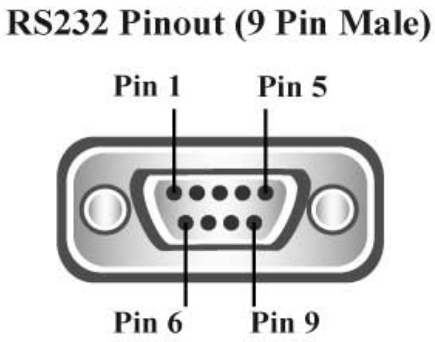
Serial Interface Communication Protocol

[G-Sirius]

For Models: Panoramic Display

RS232

Pin 1	DCD
Pin 2	RXD
Pin 3	TXD
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI



◆ SICP (Serial Interface Communication Protocol)

This document defines all the command and messages exchanged between the Master (a PC or the other controller) and the Slave (the displays).
It also describes the ways to send or read the commands or the messages.

1. Protocol definition

SICP stands for “Serial Interface Communication Protocol”.
The protocol is specifically designed to allow data communication in half duplex multi-point environments, but it can also be used for half duplex point-to-point RS-232C communication.

2. Communication characteristics

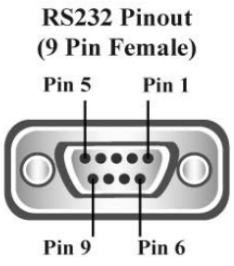
A half duplex communication is implemented starting from the concept of a master-slave structure, where the display is supposed to be the slave.
The first action is always taken by the master, which can be either a PC or any controlling device (acting as server) interfaced to the monitor. After sending a command or a request in the appropriate format the master receives from the slave an acknowledgement, which tells the transmitter whether the command is not valid (or not executable, anyway) or it is accepted. In case of a request, the requested information is sent back and it becomes the acknowledgement by itself.

3. How to connect a external equipment

Female Pin number male Pin number
2 <----------> 2
3 <----------> 3
5 <----------> 5

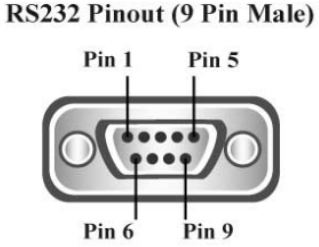
[Display side]

Pin 1	RI
Pin 2	TXD
Pin 3	RXD
Pin 4	DSR
Pin 5	GND
Pin 6	DTR
Pin 7	CTS
Pin 8	RTS
Pin 9	Power Input /DCD



[PC side]

Pin 1	DCD
Pin 2	RXD
Pin 3	TXD
Pin 4	DTR
Pin 5	GND
Pin 6	DSR
Pin 7	RTS
Pin 8	CTS
Pin 9	RI



4. Hardware Protocol

Baud rate : 9600 bps
Data bits : 8 bit
Parity bits : None
Stop bits : 1 bit
Handshake : None

5. Transmission Formats

This is the format that the computer will send to the display to execute commands . The format for this command transmission is as follows: (total 13 byte)

ex) <STX>001PWRWOFF0<ETX> (Set ID : 1 , Power Off Send)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f	0	0	1	P	W	R	W	O	F	F	0	0x0d
Hex	ASCII (capital letter)											Hex

- STX : Start of Text (0x0f)
- ID1 ~ ID3 : Set ID (001~100)
- CM1 ~ CM3 : Command (PWR, RMT, MIN …)
- R/W : Read/Write(R,W)
- DA1 ~ DA3 : Data (Values)
- IND : Index
- ETX : End of Text (0x0d)

6. OK Acknowledgement

The acknowledgement will be sent by the display to the computer to verify that the command has been successfully received and executed. This format for this acknowledgement is as follows:

ex) <STX>001PWR#-ON#<ETX> (Set ID : 1 , Power Acknowledgement)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f	0	0	1	P	W	R	#	-	O	N	#	0x0d
Hex	ASCII (capital letter)											Hex

7. Error Acknowledgement

The Error Values will be sent by the display to the computer to verify that the command has been successfully received and executed. This format for this Error Values is as follows:

ex) <STX>001PWRERROR<ETX> (Set ID : 1 , Power Off Error)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f	0	0	1	P	W	R	E	R	R	O	R	0x0d
Hex	ASCII (capital letter)											Hex

8. Command List

◆ Set Power On/Off (PWR)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				P	W	R	W				0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : “-ON” : Power On
  “OFF” : Power Off

Ex) <STX>001PWRWOFF0<ETX> (ID:001 , Power Off)
Acknowledge => <STX>001PWR#OFF#<ETX>

◆ Get Power State (PWS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				P	W	S	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001PWSR0000<ETX> (ID:001 , Get Power Status)
Acknowledge => <STX>001PWS#OFF#<ETX>

- DA1 ~ DA3 : “-ON” : Power On
  “OFF” : Power Off

◆ Set Virtual Remote Control (RMT)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				R	M	T	W				0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : “MEN” (Menu)
  “SOU” (Source)
  “LEF” (Left)
  “RIG” (Right)
  “ENT” (Enter & PC Auto Adjust)
  “-UP” (Up)
  “DOW” (Down)
  “EXI” (Exit)
- IND : “0” (don’t care)

Ex) <STX>001RMTWSOU0<ETX> (Remote Source Button)
Acknowledge => <STX>001RMT#SOU#<ETX>

◆ Set Source Change (MIN)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				M	I	N	W					0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : "-PC" : PC-RGB
  "HD1" : HDMI1
  "HD2" : HDMI2
  "DMP" : DMP
- IND : "0" (don't care)

Ex) <STX>001MINWHD10<ETX> (Source HDMI1)
Acknowledge => <STX>001MIN#HD1#<ETX>

◆ Get Source State (MIS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**M**	**I**	**S**	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (001~100)
- DA1 ~ DA3 : "000" (don't care)
- IND : "0" (don't care)

Ex) <STX>001MISR0000<ETX> (ID: 001 , Get Source Status)
Acknowledge => <STX>001MIS#COM#<ETX>

- DA1 ~ DA3 : "-PC" : PC-RGB
  "HD1" : HDMI1
  "HD2" : HDMI2
  "DMP" : DMP

◆ Set Volume Adjust (VOL)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**V**	**O**	**L**	W				0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID ("001" ~ "100")
- DA1 ~ DA3 : "000" ~ "100" (Mute : When Volume "000")
- IND : "0" (don't care)

Ex) <STX>001VOLW1000<ETX> (ID:001, Volume 100)
Acknowledge => <STX>001VOL#100#<ETX>

◆ Get Volume State (VOS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				V	O	S	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001VOSR0000<ETX> (ID:001, Get Volume)
Acknowledge => <STX>001VOS#050#<ETX>

- DA1 ~ DA3 : Volume Value

◆ Get Current Temperature (TPS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				T	P	S	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001TPSR0000<ETX> (ID:001, Read Current Temperature)
Acknowledge => <STX>001TPS#050#<ETX>

- DA1 ~ DA3 : Temperature Value

◆ Set Dimming Setting (DIM)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				D	I	M	W				0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” ~ “100”
- IND : “0” (don’t care)

Ex) <STX>001DIMW1000<ETX> (ID:001, Dimming 100)
Acknowledge => <STX>001DIM#100#<ETX>

◆ Get Dimming Setting (DIS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**D**	**I**	**S**	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001DISR0000<ETX> (ID:001, Read Dimming)
Acknowledge => <STX>001DIS#100#<ETX>

◆ Set Auto Dimming Control (ADC)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**A**	**D**	**C**	W				0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “-ON” : Auto Dimming On
  “OFF” : Auto Dimming Off
- IND : “0” (don’t care)

Ex) <STX>001ADCW-ON0<ETX> (ID:001, Auto Dimming On)
Acknowledge => <STX>001ADC#-ON#<ETX>

◆ Get Auto Dimming Control (ADS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**A**	**D**	**S**	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001ADSR0000<ETX> (ID:001, Read Auto Dimming Control)
Acknowledge => <STX>001ADS#AUT#<ETX>

- DA1 ~ DA3 : “-ON” : Auto Dimming On
  “OFF” : Auto Dimming Off

◆ Set Max Ambient Setting (AMA) – Auto Dimming (On)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				A	M	A	W					0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ IND : “0000” ~ “3000”

Ex) <STX>001AMAW0700<ETX> (ID:001, Max Ambient 700)
Acknowledge => <STX>001AMA#0700<ETX>

◆ Get Max Ambient Setting (AMS) – Auto Dimming (On)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				A	M	S	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001AMSR0000<ETX> (ID:001, Read Max Ambient)
Acknowledge => <STX>001AMS#0700<ETX>

◆ Set Min Ambient Setting (ANA) – Auto Dimming (On)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				A	N	A	W					0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ IND : “0000” ~ “3000”

Ex) <STX>001ANAW0200<ETX> (ID:001, Min Ambient 200)
Acknowledge => <STX>001ANA#0200<ETX>

◆ Get Min Ambient Setting (ANS) – Auto Dimming (On)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				A	N	S	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001ANSR0000<ETX> (ID:001, Read Min Ambient)
Acknowledge => <STX>001ANS#0200<ETX>

◆ Get Current Lux (LUX)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**L**	**U**	**X**	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)											Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001LUXR0000<ETX> (ID:001, Read Current Lux)
Acknowledge => <STX>001LUX#0650<ETX> (650 Lux)

◆ Set Current Time Setting (CTM)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**C**	**T**	**M**	W					0x0d
Hex	ASCII (capital letter)							Hex			ASCII	Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 : “00~17” (Hour) or “01~1F” (Date)
- DA2 : “00~3B”(Minute) or “01~0C” (Month)
- DA3 : “00~3B”(Second) or “00~63” (Year)
- IND : “0” : Mode Time (Hour , Minute , Second)
  “1” : Mode Date (Date , Month , Year)

Ex) <STX>001CTMW<0A><0C><0C>0<ETX> (ID:001, 10Hour/12Minute/12Second) – Mode Time
Acknowledge => <STX>001CTM#<0A><0C><0C>0<ETX>
Ex) <STX>001CTMW<0F><06><0E>1<ETX> (ID:001, Date 15 /Month 6 /Year 2014) – Mode Date
Acknowledge => <STX>001CTM#<0F><06><0E>1<ETX>

◆ Get Current Time Setting (CTS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				**C**	**T**	**S**	R	0	0	0		0x0d
Hex	ASCII (capital letter)							Hex			ASCII	Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” : Mode Time (Hour , Minute , Second)
  “1” : Mode Date (Date , Month , Year)

Ex) <STX>001CTSR0000<ETX> (ID:001, Get Current Time) – Mode Time
Acknowledge => <STX>001CTS#<05><0F><1E>0<ETX> (05 : 15 : 30)
Ex) <STX>001CTSR0001<ETX> (ID:001, Get Current Time) – Mode Date
Acknowledge => <STX>001CTS#<0F><08><0F>1<ETX> (15 / 08 / 2015)

- DA1 : “00~17” (Hour) or “01~1F” (Date)
- DA2 : “00~3B”(Minute) or “01~0C” (Month)
- DA3 : “00~3B”(Second) or “00~63” (Year)
- IND : “0” : Mode Time (Hour , Minute , Second)
  “1” : Mode Date (Date , Month , Year)

◆ Set Off Time Setting (FTM)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				F	T	M	W				0	0x0d
Hex	ASCII (capital letter)							Hex			ASCII	Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 : “00~17” (Hour)
- DA2 : “00~3B”(Minute)
- DA3 : “00” (Off)
  “01” (Once)
  “02” (Every Day)
  “03” (Mon ~ Fri)
  “04” (Mon ~ Sat)
  “05” (Sat ~ Sun)
  “06” (Sun)
- IND : “0” (don’t care)

Ex) <STX>001FTMW<12><1E><01>0<ETX> (ID:001, 18 : 30 , Once)
Acknowledge => <STX>001FTM#<12><1E><01>#<ETX>

◆ Get Off Time State (FTS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				F	T	S	R	0	0	0	0	0x0d
Hex	ASCII (capital letter)							Hex				Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” (don’t care)

Ex) <STX>001FTSR0000<ETX> (ID:001, Get Off Time)
Acknowledge => <STX>001FTS#<12><1E><01>#<ETX> (18 : 30 , Once)

- DA1 : “00~17” (Hour)
- DA2 : “00~3B”(Minute)
- DA3 : “00” (Off)
  “01” (Once) “02” (Every Day)
  “03” (Mon ~ Fri) “04” (Mon ~ Sat)
  “05” (Sat ~ Sun) “06” (Sun)

◆ Set On Time Setting (NTM)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				N	T	M	W				0	0x0d
Hex	ASCII (capital letter)							Hex			ASCII	Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 : “00~17” (Hour) or “00~05” (On Source)[Component, PC-RGB, HDMI1, HDMI2, AV, DMP]
- DA2 : “00~3B”(Minute) or “00~64” (On Volume)

- DA3 : “00” (Off)
  “01” (Once) “02” (Every Day)
  “03” (Mon ~ Fri) “04” (Mon ~ Sat)
  “05” (Sat ~ Sun) “06” (Sun)
- IND : “0” : Mode Time (Hour , Minute , Second)
  “1” : Mode Source (Source , Volume)

Ex) <STX>001NTMW<0C><1E><02>0<ETX> (ID:001, 12 : 30 , Every Day)
Acknowledge => <STX>001NTM#<0C><1E><02>0<ETX>
Ex) <STX>001NTMW<02><32><00>1<ETX> (ID:001, HDMI1 , 50)
Acknowledge => <STX>001NTM#<02><32><00>1<ETX>

◆ Get On Time State (NTS)

STX	ID1	ID2	ID3	CM1	CM2	CM3	R/W	DA1	DA2	DA3	IND	ETX
0x0f				N	T	S	R				0	0x0d
Hex	ASCII (capital letter)							Hex			ASCII	Hex

- ID1 ~ ID3 : Set ID (“001” ~ “100”)
- DA1 ~ DA3 : “000” (don’t care)
- IND : “0” : Mode Time (Hour , Minute , Second)
  “1” : Mode Source (Source , Volume)

Ex) <STX>001NTSR0000<ETX> (ID:001, Get On Time) – Mode Time
Acknowledge => <STX>001NTS#<0C><1E><02>0<ETX> (12 : 30 , Every Day)
Ex) <STX>001NTSR0001<ETX> (ID:001, Get On Time) – Mode Source
Acknowledge => <STX>001NTS#<04><32><30>1<ETX> (AV , Volume 50)

- DA1 : “00~17” (Hour) or “00~05” (On Source)[Component, PC-RGB, HDMI1, HDMI2, AV, DMP]
- DA2 : “00~3B”(Minute) or “00~64” (On Volume)
- DA3 : “00” (Off)
  “01” (Once) “02” (Every Day)
  “03” (Mon ~ Fri) “04” (Mon ~ Sat)
  “05” (Sat ~ Sun) “06” (Sun)
- IND : “0” : Mode Time (Hour , Minute , Second)
  “1” : Mode Source (Source , Volume)